

Lyme Disease and Tick Surveillance in British Columbia

2024 Update

Key Messages

The number of locally acquired Lyme disease cases and the prevalence of *B. burgdorferi* in submitted ticks remain low in BC.

In 2023:

- 28 confirmed Lyme disease cases were reported; however, only 4 cases appear to have been acquired locally.
- 0.7% of *Ixodes* spp. ticks submitted to the BCCDC Public Health Laboratory tested positive for *Borrelia burgdorferi*, the causative agent of Lyme disease.
- Most tick submissions to the eTick platform were identified as *Dermacentor* spp. (52%) or *Ixodes pacificus* (45%).

Background

In the context of climate change, the need for timely surveillance data of local tick populations and the diseases they carry has become increasingly important for the purposes of risk assessment and management. The British Columbia Centre for Disease Control (BCCDC) operates an integrated surveillance program that consists of monitoring human cases of Lyme disease and conducting surveillance of local tick populations for the presence of *Borrelia burgdorferi*.

This report provides an update on human cases of Lyme disease reported to the BCCDC, *B. burgdorferi*-positive *Ixodes* spp. tick submissions to the BCCDC Public Health Laboratory (PHL), and tick submissions from BC residents to eTick for the year 2023.

Lyme Disease in British Columbia

The total number of Lyme disease cases increased in 2023, although this increase is largely attributable to an increase in travel-acquired cases.

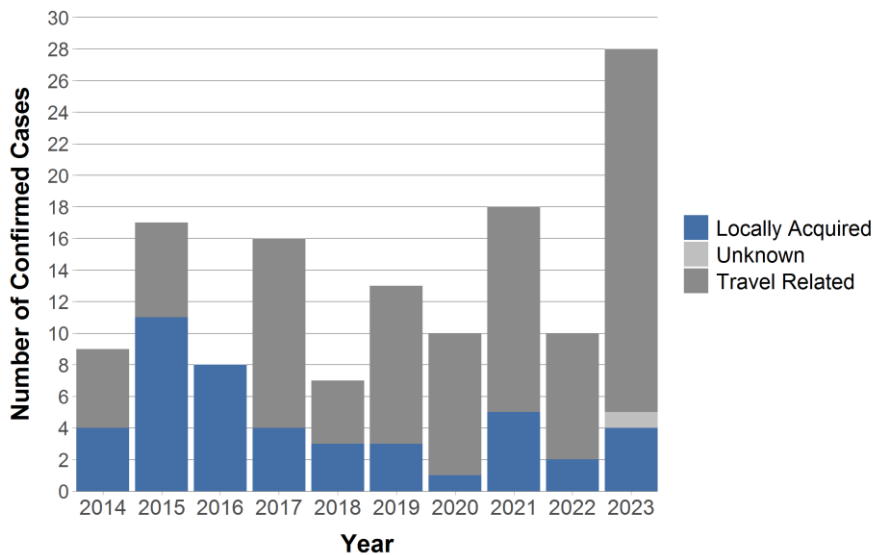


Figure 1. Confirmed Lyme disease cases in BC by likely location of acquisition, 2014-2023.

A total of 28 confirmed Lyme disease cases were reported in BC in 2023, an increase compared to previous years. However, only 4 of these cases appear to have been acquired locally based on available exposure information, which is consistent with the trend observed in previous years. One case reported in 2023 was lost to follow up and likely location of acquisition could not be assessed.

Positive Tick Submissions

The proportion of *Ixodes* spp. ticks that were positive for *B. burgdorferi* in 2023 remained low (0.7%).

The BCCDC PHL conducts identification and pathogen testing of ticks from humans and animals submitted by physicians and veterinarians, respectively. In 2023, a total of 602 *Ixodes* spp. ticks were submitted to the BCCDC PHL and pathogen tested for *B. burgdorferi*, the causative agent of Lyme disease. Four *Ixodes* spp. ticks tested

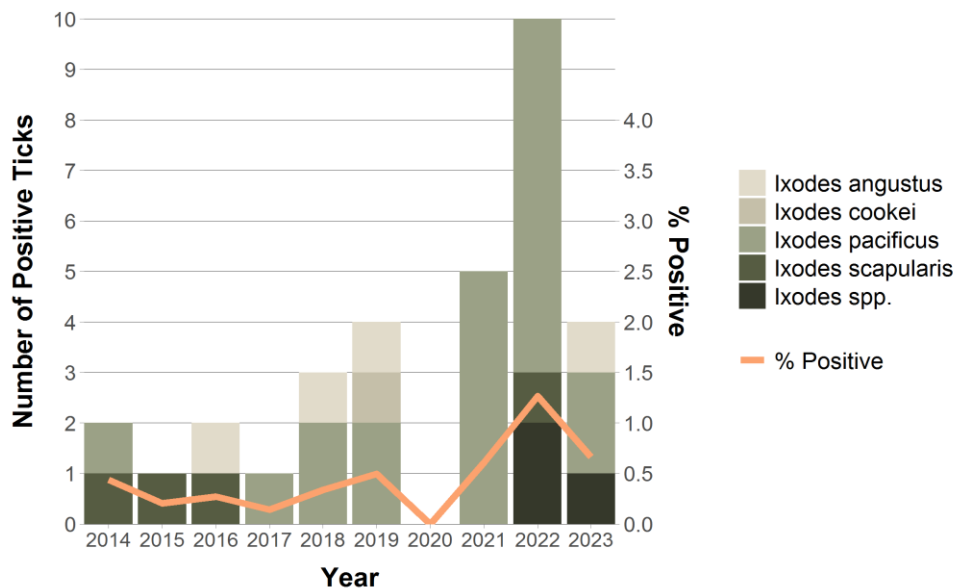


Figure 2. *B. burgdorferi*-positive *Ixodes* spp. tick submissions, 2014-2023.

positive for *B. burgdorferi* (0.7%) in 2023, which is a decrease from 2022, but comparable to what was observed in 2019 and 2021 (Figure 2).

B. burgdorferi-positive ticks submitted between 2014-2023 were identified as ticks of the following species: *Ixodes pacificus* (20 ticks), *Ixodes angustus* (4 ticks), *Ixodes scapularis* (4 ticks), and *Ixodes cookei* (1 tick). Three positive *Ixodes* spp. ticks were unable to be further classified at the species level. Most of the 32 *B. burgdorferi*-positive tick submissions received over the past ten years were found on humans (26 ticks), although some positive ticks were also collected from dogs (6 ticks). All *B. burgdorferi*-positive tick submissions received in 2023 were reported to be found on humans in BC; however, acquisition may have occurred during travel outside of the province.

Tick Species Diversity

Ixodes spp. tick submissions were mainly from the southern coastal regions of the province and *Dermacentor* spp. tick submissions were mainly from the southern interior.



Did you know? eTick is the preferred method for quick tick identification. To participate, submit a photo of the tick to www.eTick.ca.

In 2023 there were 968 valid tick submissions to eTick from BC without reported out-of-province travel. Most submissions were identified as *Dermacentor* spp. ticks (52%) followed by *Ixodes pacificus* (45%), although *Ixodes auritulus*, *Ixodes rugosus*, and *Rhipicephalus sanguineus* ticks were also identified (Table 1).

Ixodes spp. tick submissions occurred mostly in the southern coastal region of the province, whereas *Dermacentor* spp. tick submissions tended to be from the southern interior region (Figure 3). There were a few exceptions to this trend, notably an *Ixodes angustus* tick captured on a trail in Terrace and a *Dermacentor* spp. tick found on a dog in Dawson Creek with no history of travel.

Table 1. BC eTick Submissions without reported out-of-province travel, 2023.

Species	Submissions
<i>Dermacentor</i> spp.	502
<i>Ixodes pacificus</i>	437
<i>Ixodes angustus</i>	22
<i>Ixodes auritulus</i>	3
<i>Ixodes rugosus</i>	1
<i>Rhipicephalus sanguineus</i>	3

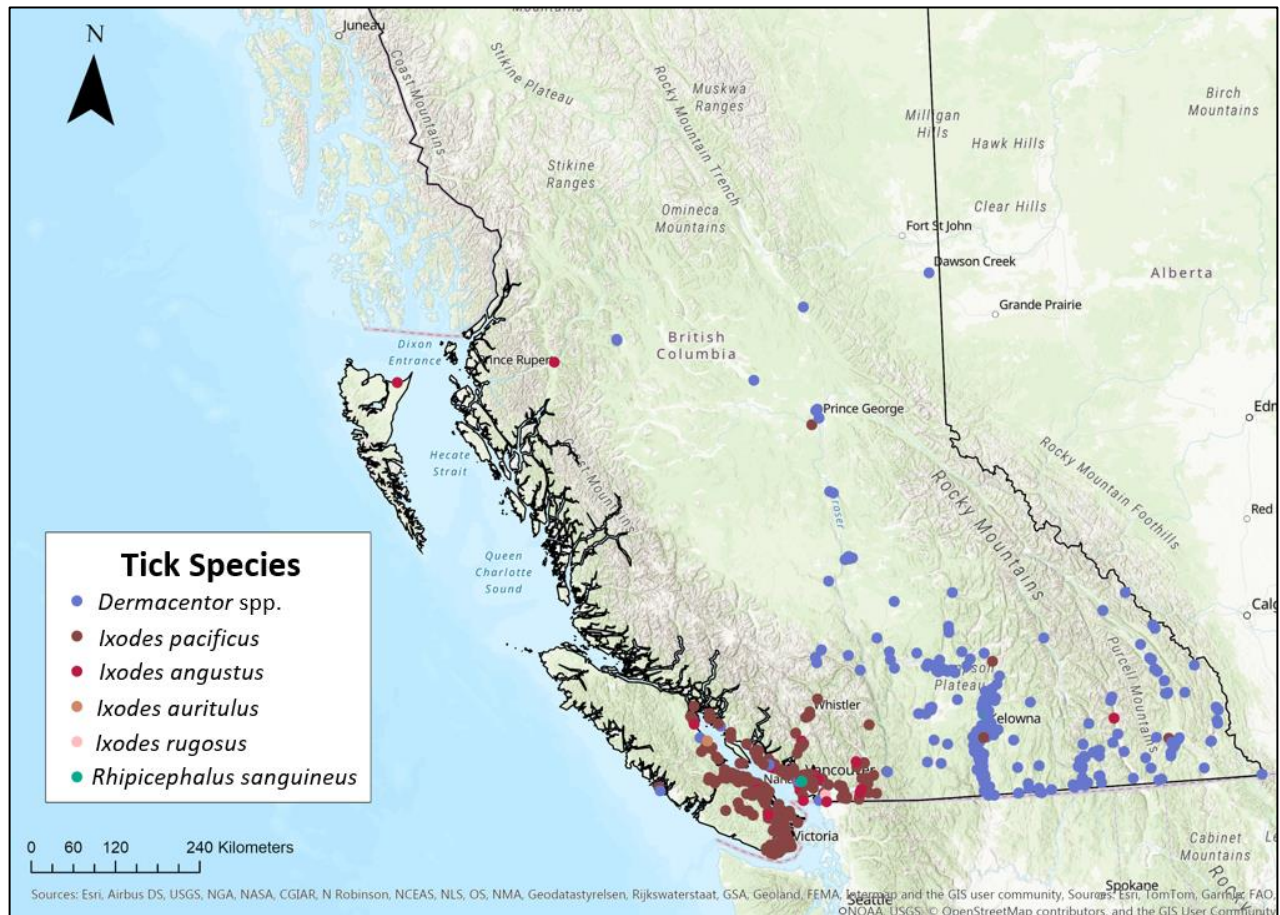


Figure 3. Map of valid tick submissions to eTick without reported out-of-province travel, 2023.

Summary

The number of locally acquired Lyme disease cases and the prevalence of *B. burgdorferi* in submitted ticks remain low in BC. *Ixodes* spp. ticks were most commonly encountered in the south coastal region of the province while *Dermacentor* spp. ticks were most commonly encountered in the southern interior.

Although the risk of acquiring Lyme disease in BC is low, it continues to be important to take measures to prevent tick bites when spending time outdoors and to promptly remove attached ticks if encountered.

Additional Resources

- For more information on tick-borne diseases in BC, including information on preventing tick bites or what to do if you find a tick, please consult <http://www.bccdc.ca/> or <https://ticktool.etick.ca/>
- For more information regarding historical trends, please consult the 2023 report “[Ticks and Tick-Borne Disease Surveillance in British Columbia](#)”
- For more information on how to submit a tick to eTick, please visit www.etick.ca.